HIGH SIDE CURRENT MONITOR WITH EXTENDED VOLTAGE RANGE

ABSTRACT OF THE DISCLOSURE

A high side current monitor circuit includes an op amp which is coupled across a sensing element which carries a current I_{sense} and develops a shunt voltage V_{sense}. A feedback transistor driven by the op amp output conducts an output current I_{out} through a resistor to a current output node necessary to make the op amp inputs equal, such that I_{out} is proportional to I_{sense}. I_{out} is conducted through a resistor to generate a ground-referred voltage proportional to V_{sense}. When the common mode voltage of V_{sense} is greater than the op amp's breakdown voltage, a discrete transistor is connected between the current output node and ground to stand off the voltage across the amp. The monitor circuit is arranged such that it can be powered with a limited fraction of the common mode voltage when used with a discrete transistor, and is self-biased when used without a discrete transistor.